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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/616,638

07/09/2003

John P. Castagna

GTI-1538

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33058

7590

11/10/2004

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EXAMINER

DESTA, ELIAS

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/616,638

Applicant(s)

CASTAGNA ET AL.

Examiner

Elias Desta

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/27/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/10/03, 10/27/03</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **Detailed Action**

### **Specification**

1. The specification is objected to because of the following minor informalities:
  - Page 3, paragraph 5: the equation, which represents Short Time Fourier Transform, is missing.
  - Page 5, line 10, under paragraph 7: missing expression after the word "where" that may express the elements of the equation defined on line 9.
  - Page 6, continuation of paragraph 7: some text missing.
  - Page 7, lines 10-15: copy does not show defining expressions and equations indicated: Fourier Kernel and wavelet transform equation missing.
  - Page 8, paragraph 12, the equation representing MPD and the defining terms missing from lines 13-14.

### **Claim rejection – 35 U.S.C. 102**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by Fernandez et al. (IEEE Article, 'Texture Segmentation of a 3D Seismic Section with Wavelet Transform and Gabor Filters').

In reference to claim 1: Fernandez et al. teaches a method of seismic data processing (Fernandez et al., Abstract and page 355, wavelet packet transform). The method includes:

- Using a seismic source for propagating seismic wave into an earth formation and receiving a signal indicative of a property thereof, where the signal resulting from interaction of the seismic waves with the earth formation (see Fernandez et al., page 354, section 1: Introduction and section 2, Seismic Data, paragraph 1);
- Defining a plurality of wavelets characteristic of the received signal (see Fernandez et al., page 355, section 4.1: Pattern Construction);
- Determining a particular one of the plurality of wavelets most characteristic of the received signal where the best of the pattern is built (see Fernandez et al., page 355, 2<sup>nd</sup> column, 2<sup>nd</sup> paragraph); and
- Adding the particular one of the plurality of wavelets to a selected list of wavelets (see Fernandez et al., page 355, section 5, features, specially equation 1).

With regard to claim 2: as noted above in claim 1, Fernandez et al. further teaches that the plurality of wavelets further includes performing a wavelet transform of the received signal (see Fernandez et al., page 355, section 4.1).

### **Allowable Subject Matter**

4. Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### **Conclusion**

5. Citation of pertinent prior art:

- a. Justice, Jr. et al. (U.S. Patent 5,253,217) teaches method for seismic exploration including compensation for near surface effects.
- b. Hadidi et al. (U.S. Patent 4,780,859) teaches method of interpreting seismic data.
- c. Black et al. (U.S. Patent 6,791,899) teaches acoustic logging apparatus and method for Anisotropic earth formations.
- d. Armitage (U.S. Patent 5,136,551) teaches system for evaluation of velocities of acoustical energy of sedimentary rocks.
- e. Shei (U.S. Patent 4,750,157) teaches seismic vibration earth impedance determination and compensation system.
- f. Aronstam (U.S. Patent 5,886,255) teaches method and apparatus for monitoring mineral production
- g. Korneev et al. (U.S. Patent 6,108,606) teaches wave-guide disturbance detection.

- h. Huffman et al. (U.S. Patent 6,751,558) teaches method and process for prediction of subsurface fluid and rock pressures in the earth.
  - i. O'Connell et al. (U.S. Patent 4,964,086) teaches method for characterizing velocity estimates.
  - j. Frye [FE, Inc., 'A Straightforward Approach to High Definition Temporal/Frequency Analysis: The Scaled Gaussian Filter (SGF)'] teaches process of realizing frequency resolutions to illustrate the tradeoff of time against frequency resolution.
  - k. Yiou et al. (Physica, 'Data-Adaptive Wavelets and Multi-Scale SSA') teaches a method of extending wavelet analysis to singular-spectrum analysis to the study of non-stationary time series events.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Desta whose telephone number is (571)-272-2214. The examiner can normally be reached on M-Thu (8:30-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2216. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9306 for regular communications and After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)-272-1750


Application/Control Number: 10/616,638  
Art Unit: 2857

Page 6

Elias Desta  
Examiner  
Art Unit 2857

-ed

October 28, 2004



PATRICK ASSOUD  
PRIMARY EXAMINER